

AMENDMENT IN THE NATURE OF A SUBSTITUTE
TO H.R. 5356
OFFERED BY MR. MCCAUL OF TEXAS, MR. BOEH-
LERT OF NEW YORK, MR. GORDON OF TEN-
NESSEE, AND MS. HOOLEY OF OREGON

Strike all after the enacting clause and insert the following:

1 SECTION 1. SHORT TITLE.

2 This Act may be cited as the “Research for Competi-
3 tiveness Act”.

4 SEC. 2. NATIONAL SCIENCE FOUNDATION EARLY CAREER
5 AWARDS FOR SCIENCE AND ENGINEERING
6 RESEARCHERS.

7 (a) IN GENERAL.—The Director of the National
8 Science Foundation shall carry out a program to award
9 grants to scientists and engineers at the early stage of
10 their careers at institutions of higher education and orga-
11 nizations described in subsection (c)(2) to conduct re-
12 search in fields relevant to the mission of the Foundation.
13 The existing Faculty Early Career Development (CA-
14 REER) Program may be designated as the mechanism for
15 awarding such grants.



1 (b) SIZE AND DURATION OF AWARD.—The duration
2 of awards under this section shall be 5 years, and the
3 amount per year shall be at least \$80,000.

4 (c) ELIGIBILITY.—Award recipients shall be individ-
5 uals who are employed in a tenure-track position as an
6 assistant professor or equivalent title, or who hold an
7 equivalent position, at—

8 (1) an institution of higher education in the
9 United States; or

10 (2) an organization in the United States that is
11 a nonprofit, nondegree-granting research organiza-
12 tion such as a museum, observatory, or research lab-
13 oratory.

14 (d) SELECTION.—Award recipients shall be selected
15 on a competitive, merit-reviewed basis.

16 (e) SELECTION PROCESS AND CRITERIA FOR
17 AWARDS.—An applicant seeking funding under this sec-
18 tion shall submit a proposal to the Director at such time,
19 in such manner, and containing such information as the
20 Director may require. In evaluating the proposals sub-
21 mitted under this section, the Director shall consider, at
22 a minimum—

23 (1) the intellectual merit of the proposed work;
24 (2) the innovative or transformative nature of
25 the proposed research;



1 (3) the extent to which the proposal integrates
2 research and education, including undergraduate
3 education in science and engineering disciplines; and
4 (4) the potential of the applicant for leadership
5 at the frontiers of knowledge.

6 (f) AWARDS.—In awarding grants under this section,
7 the Director shall endeavor to ensure that the recipients
8 are from a variety of types of institutions of higher edu-
9 cation and nonprofit, nondegree-granting research organi-
10 zations. In support of this goal, the Director shall broadly
11 disseminate information about when and how to apply for
12 grants under this section, including by conducting out-
13 reach to Historically Black Colleges and Universities that
14 are part B institutions as defined in section 322(2) of the
15 Higher Education Act of 1965 (20 U.S.C. 1061(2)) and
16 minority institutions (as defined in section 365(3) of that
17 Act (20 U.S.C. 1067k(3))).

18 (g) AUTHORIZATION OF APPROPRIATIONS.—For each
19 of the fiscal years 2007 through 2011, the Director shall
20 allocate at least 3.5 percent of funds appropriated to the
21 National Science Foundation for Research and Related
22 Activities to the grants program under this section.

23 (h) REPORT.—Not later than 6 months after the date
24 of enactment of this Act, the Director shall transmit to
25 the Committee on Science of the House of Representatives

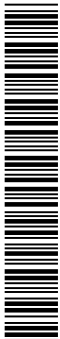


1 and to the Committee on Commerce, Science, and Trans-
2 portation of the Senate a report describing the distribution
3 of the institutions of the awardees of the Faculty Early
4 Career Development Program since fiscal year 2001
5 among each of the categories of institutions of higher edu-
6 cation defined by the Carnegie Foundation for the Ad-
7 vancement of Teaching and the organizations in sub-
8 section (c)(2).

9 (i) EVALUATION.—Not later than 2 years after the
10 date of enactment of this Act, the Director shall transmit
11 to the Committee on Science of the House of Representa-
12 tives and to the Committee on Commerce, Science, and
13 Transportation of the Senate a report evaluating the im-
14 pact of the Faculty Early Career Development Program
15 on the ability of young faculty to compete for National
16 Science Foundation research grants.

17 **SEC. 3. DEPARTMENT OF ENERGY EARLY CAREER AWARDS**
18 **FOR SCIENCE AND ENGINEERING RESEARCH-**
19 **ERS.**

20 (a) IN GENERAL.—The Director of the Office of
21 Science of the Department of Energy shall carry out a
22 program to award grants to scientists and engineers at
23 the early stage of their careers at institutions of higher
24 education and organizations described in subsection (c)(2)



1 to conduct research in fields relevant to the mission of the
2 Department.

3 (b) SIZE AND DURATION OF AWARD.—The duration
4 of awards under this section shall be up to 5 years, and
5 the amount per year shall be at least \$80,000.

6 (c) ELIGIBILITY.—Award recipients shall be individ-
7 uals who are employed in a tenure-track position as an
8 assistant professor or equivalent title, or who hold an
9 equivalent position, at—

10 (1) an institution of higher education in the
11 United States; or

12 (2) an organization in the United States that is
13 a nonprofit, nondegree-granting research organiza-
14 tion such as a museum, observatory, or research lab-
15 oratory.

16 (d) SELECTION.—Award recipients shall be selected
17 on a competitive, merit-reviewed basis.

18 (e) SELECTION PROCESS AND CRITERIA FOR
19 AWARDS.—An applicant seeking funding under this sec-
20 tion shall submit a proposal to the Director at such time,
21 in such manner, and containing such information as the
22 Director may require. In evaluating the proposals sub-
23 mitted under this section, the Director shall consider, at
24 a minimum—

25 (1) the intellectual merit of the proposed work;



1 (2) the innovative or transformative nature of
2 the proposed research;

3 (3) the extent to which the proposal integrates
4 research and education, including undergraduate
5 education in science and engineering disciplines; and

6 (4) the potential of the applicant for leadership
7 at the frontiers of knowledge.

8 (f) COLLABORATION WITH NATIONAL LABORA-
9 TORIES.—In awarding grants under this section, the Di-
10 rector shall give priority to proposals in which the pro-
11 posed work includes collaboration with the Department of
12 Energy National Laboratories.

13 (g) AWARDS.—In awarding grants under this section,
14 the Director shall endeavor to ensure that the recipients
15 are from a variety of types of institutions of higher edu-
16 cation and nonprofit, nondegree-granting research organi-
17 zations. In support of this goal, the Director shall broadly
18 disseminate information about when and how to apply for
19 grants under this section, including by conducting out-
20 reach to Historically Black Colleges and Universities that
21 are part B institutions as defined in section 322(2) of the
22 Higher Education Act of 1965 (20 U.S.C. 1061(2)) and
23 minority institutions (as defined in section 365(3) of that
24 Act (20 U.S.C. 1067k(3))).



1 (h) AUTHORIZATION OF APPROPRIATIONS.—There
2 are authorized to be appropriated to the Secretary of En-
3 ergy to carry out the Director's responsibilities under this
4 section \$25,000,000 for each of the fiscal years 2007
5 through 2011.

6 (i) REPORT ON RECRUITING AND RETAINING EARLY
7 CAREER SCIENCE AND ENGINEERING RESEARCHERS AT
8 THE NATIONAL LABORATORIES.—Not later than 3
9 months after the date of enactment of this Act, the Direc-
10 tor shall transmit to the Committee on Science of the
11 House of Representatives and to the Committee on En-
12 ergy and Natural Resources of the Senate a report on ef-
13 forts to recruit and retain young scientists and engineers
14 at the early stages of their careers at the Department of
15 Energy National Laboratories. The report shall include—

16 (1) a description of Department of Energy and
17 National Laboratory policies and procedures, includ-
18 ing financial incentives, awards, promotions, time set
19 aside for independent research, access to equipment
20 or facilities, and other forms of recognition, designed
21 to attract and retain young scientists and engineers;

22 (2) an evaluation of the impact of these incen-
23 tives on the careers of young scientists and engi-
24 neers at Department of Energy National Labora-
25 tories, and also on the quality of the research at the



1 National Laboratories and in Department of Energy
2 programs;

3 (3) a description of what barriers, if any, exist
4 to efforts to recruit and retain young scientists and
5 engineers, including limited availability of full time
6 equivalent positions, legal and procedural require-
7 ments, and pay grading systems; and

8 (4) the amount of funding devoted to efforts to
9 recruit and retain young researchers and the source
10 of such funds.

11 **SEC. 4. REPORT ON NATIONAL INSTITUTE OF STANDARDS**
12 **AND TECHNOLOGY EFFORTS TO RECRUIT**
13 **AND RETAIN EARLY CAREER SCIENCE AND**
14 **ENGINEERING RESEARCHERS.**

15 Not later than 3 months after the date of enactment
16 of this Act, the Director of the National Institute of
17 Standards and Technology shall transmit to the Com-
18 mittee on Science of the House of Representatives and to
19 the Committee on Commerce, Science, and Transportation
20 of the Senate a report on efforts to recruit and retain
21 young scientists and engineers at the early stages of their
22 careers at the National Institute of Standards and Tech-
23 nology laboratories and joint institutes. The report shall
24 include—



1 (1) a description of National Institute of Stand-
2 ards and Technology policies and procedures, includ-
3 ing financial incentives, awards, promotions, time set
4 aside for independent research, access to equipment
5 or facilities, and other forms of recognition, designed
6 to attract and retain young scientists and engineers;

7 (2) an evaluation of the impact of these incen-
8 tives on the careers of young scientists and engi-
9 neers at the National Institute of Standards and
10 Technology, and also on the quality of the research
11 at the National Institute of Standards and Tech-
12 nology's laboratories and in the National Institute of
13 Standards and Technology's programs;

14 (3) a description of what barriers, if any, exist
15 to efforts to recruit and retain young scientists and
16 engineers, including limited availability of full time
17 equivalent positions, legal and procedural require-
18 ments, and pay grading systems; and

19 (4) the amount of funding devoted to efforts to
20 recruit and retain young researchers and the source
21 of such funds.

22 **SEC. 5. NATIONAL SCIENCE FOUNDATION RESEARCH**
23 **AWARD MATCH PROGRAM.**

24 (a) IN GENERAL.—The Director of the National
25 Science Foundation shall carry out a program to award



1 grants on a competitive, merit-reviewed basis to scientists
2 and engineers at the early stage of their careers at institu-
3 tions of higher education and organizations described in
4 subsection (c)(2) to conduct high-risk, high-return re-
5 search. The program shall support fundamental research
6 with the potential for significant scientific or technical ad-
7 vancement.

8 (b) SIZE AND DURATION OF AWARD.—

9 (1) BASE AWARD.—The duration of awards
10 under this section shall be up to 5 years, and the
11 amount per year shall be up to \$75,000. The fund-
12 ing awarded under this paragraph shall not be con-
13 tingent on the receipt of funds under paragraph (2).

14 (2) MATCHING AWARD.—Each year that a re-
15 cipient is receiving funding under paragraph (1), the
16 National Science Foundation shall match any funds
17 the recipient receives from United States industry
18 for work in the area described in the recipient's ap-
19 plication for the award, up to an additional \$37,500.

20 (c) ELIGIBILITY.—Applicants for awards under this
21 section shall be individuals who are employed in a tenure-
22 track position as an assistant professor or equivalent title,
23 or who hold an equivalent position, at—

24 (1) an institution of higher education in the
25 United States; or



1 (2) an organization in the United States that is
2 a nonprofit, nondegree-granting research organiza-
3 tion such as a museum, observatory, or research lab-
4 oratory.

5 However, a recipient awarded a grant under this section
6 may continue to receive funding under the grant regard-
7 less of whether the recipient has been granted tenure after
8 the awarding of the grant.

9 (d) OUTREACH.—The Director shall broadly dissemi-
10 nate information about when and how to apply for grants
11 under this section, including by conducting outreach to
12 Historically Black Colleges and Universities that are part
13 B institutions as defined in section 322(2) of the Higher
14 Education Act of 1965 (20 U.S.C. 1061(2)) and minority
15 institutions (as defined in section 365(3) of that Act (20
16 U.S.C. 1067k(3))).

17 (e) APPLICATION.—Applicants for awards under this
18 section shall submit to the Director—

19 (1) a curriculum vitae or resume, including a
20 list of publications and a description of any activities
21 demonstrating leadership or educational activities;

22 (2) a description of research areas of interest;

23 (3) letters of recommendation; and

24 (4) any other materials the Director requires.



1 (f) CRITERIA FOR AWARDS.—In establishing criteria
2 for evaluation of applications for grants under this section,
3 the Director shall include—

4 (1) the potential of the applicant for leadership
5 at the frontiers of knowledge;

6 (2) the potential innovative or transformative
7 nature of research in the areas of interest described
8 in the application;

9 (3) the creativity of the applicant as determined
10 by criteria set by the Director, including creativity
11 demonstrated in past research activities; and

12 (4) the potential interest to industry of research
13 in the areas of interest described in the application.

14 (g) AUTHORIZATION OF APPROPRIATIONS.—There
15 are authorized to be appropriated to the Director of the
16 National Science Foundation to carry out this section—

17 (1) \$3,000,000 for fiscal year 2007;

18 (2) \$6,000,000 for fiscal year 2008;

19 (3) \$9,000,000 for fiscal year 2009;

20 (4) \$12,000,000 for fiscal year 2010; and

21 (5) \$15,000,000 for fiscal year 2011.

22 **SEC. 6. DEPARTMENT OF ENERGY RESEARCH AWARD**
23 **MATCH PROGRAM.**

24 (a) IN GENERAL.—The Director of the Office of
25 Science of the Department of Energy shall carry out a



1 program to award grants on a competitive, merit-reviewed
2 basis to scientists and engineers at the early stage of their
3 careers at institutions of higher education and organiza-
4 tions described in subsection (d)(2) to conduct high-risk,
5 high-return research in areas related to energy production,
6 storage, and use. The program shall support fundamental
7 research with the potential for significant scientific or
8 technical advancement.

9 (b) INVOLVEMENT OF DEPARTMENT OF ENERGY OR-
10 GANIZATIONS.—In carrying out this program, the Director
11 shall consult with the research, development, demonstra-
12 tion, and commercial application programs of the Office
13 of Nuclear Energy Research and Development, the Office
14 of Fossil Energy, and the Office of Energy Efficiency and
15 Renewables.

16 (c) SIZE AND DURATION OF AWARD.—

17 (1) BASE AWARD.—The duration of awards
18 under this section shall be up to 5 years, and the
19 amount per year shall be up to \$75,000. The fund-
20 ing awarded under this paragraph shall not be con-
21 tingent on the receipt of funds under paragraph (2).

22 (2) MATCHING AWARD.—Each year that a re-
23 cipient is receiving funding under paragraph (1), the
24 Department of Energy Office of Science shall match
25 any funds the recipient receives from United States



1 industry for work in the area described in the recipi-
2 ent's application for the award, up to an additional
3 \$37,500.

4 (d) ELIGIBILITY.—Applicants for awards under this
5 section shall be individuals who are employed in a tenure-
6 track position as an assistant professor or equivalent title,
7 or who hold an equivalent position, at—

8 (1) an institution of higher education in the
9 United States; or

10 (2) an organization in the United States that is
11 a nonprofit, nondegree-granting research organiza-
12 tion such as a museum, observatory, or research lab-
13 oratory.

14 However, a recipient awarded a grant under this section
15 may continue to receive funding under the grant regard-
16 less of whether the recipient has been granted tenure after
17 the awarding of the grant.

18 (e) OUTREACH.—The Director shall broadly dissemi-
19 nate information about when and how to apply for grants
20 under this section, including by conducting outreach to
21 Historically Black Colleges and Universities that are part
22 B institutions as defined in section 322(2) of the Higher
23 Education Act of 1965 (20 U.S.C. 1061(2)) and minority
24 institutions (as defined in section 365(3) of that Act (20
25 U.S.C. 1067k(3))).



1 (f) APPLICATION.—Applicants for awards under this
2 section shall submit to the Director—

3 (1) a curriculum vitae or resume, including a
4 list of publications and a description of any activities
5 demonstrating leadership or educational activities;

6 (2) a description of research areas of interest;

7 (3) letters of recommendation; and

8 (4) any other materials the Director requires.

9 (g) CRITERIA FOR AWARDS.—In establishing criteria
10 for evaluation of applications for the grants awarded
11 under subsection (a), the Director shall include—

12 (1) the potential for leadership at the frontiers
13 of knowledge by the applicant;

14 (2) the potential innovative or transformative
15 nature of research in the areas of interest described
16 in the application;

17 (3) the creativity of the applicant as determined
18 by criteria set by the Director, including creativity
19 demonstrated in past research activities; and

20 (4) the potential interest to industry of research
21 in the areas of interest described in the application.

22 (h) COLLABORATION WITH NATIONAL LABORA-
23 TORIES.—In awarding grants under this section, the Di-
24 rector may give priority to applications in which the pro-



1 posed work includes collaboration with the Department of
2 Energy National Laboratories.

3 (i) AUTHORIZATION OF APPROPRIATIONS.—There
4 are authorized to be appropriated to the Secretary of En-
5 ergy to carry out the Director's responsibilities under this
6 section—

7 (1) \$2,000,000 for fiscal year 2007;

8 (2) \$4,000,000 for fiscal year 2008;

9 (3) \$6,000,000 for fiscal year 2009;

10 (4) \$8,000,000 for fiscal year 2010; and

11 (5) \$10,000,000 for fiscal year 2011.

12 **SEC. 7. MAJOR RESEARCH INSTRUMENTATION.**

13 (a) NATIONAL SCIENCE FOUNDATION PROGRAM.—
14 Awards under the Major Research Instrumentation Pro-
15 gram described in section 13 of the National Science
16 Foundation Authorization Act of 2002 shall range in
17 amount between \$100,000 and \$20,000,000 and may be
18 used to support the operations and maintenance of instru-
19 mentation and equipment acquired under the program.

20 (b) AUTHORIZATION OF APPROPRIATIONS.—There
21 are authorized to be appropriated to the National Science
22 Foundation for this program, \$94,200,000 for fiscal year
23 2007, \$100,800,000 for fiscal year 2008, \$107,800,000
24 for fiscal year 2009, \$115,300,000 for fiscal year 2010,
25 and \$123,400,000 for fiscal year 2011.



1 **SEC. 8. DONATIONS.**

2 Section 11(f) of the National Science Foundation Act
3 of 1950 (42 U.S.C. 1870(f)) is amended by inserting at
4 the end before the semicolon “, except that funds may be
5 donated for specific prize competitions”.

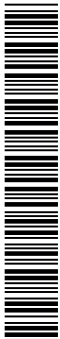
6 **SEC. 9. PROGRAM TO FOSTER CROSS-DISCIPLINARY RE-**
7 **SEARCH.**

8 (a) IN GENERAL.—The Director shall establish a pro-
9 gram to award grants for long-term, potentially path-
10 breaking, basic research designed to simultaneously ad-
11 vance the physical and nonbiomedical life sciences.

12 (b) MERIT REVIEW.—Grants shall be awarded under
13 this section on a competitive, merit-reviewed basis. The
14 Director shall ensure that review panels for proposals re-
15 ceived under this section include both physical scientists
16 and nonbiomedical life scientists, and, when appropriate,
17 engineers. The Director shall ensure that review panels for
18 proposals received under this section are open to approv-
19 ing high-risk research.

20 (c) AWARDS.—The Director may award grants under
21 this section to individuals, groups, and centers. The Direc-
22 tor shall ensure that some of the grants awarded under
23 section 2 are awarded consistent with this section.

24 (d) APPLICATION AND SELECTION.—Applications for
25 grants under this section shall be submitted to the Direc-
26 tor at such time, in such manner, and containing such



1 information as the Director may require. At a minimum,
2 applications shall contain a brief description of how the
3 proposed research will advance both the physical and non-
4 biomedical life sciences. In evaluating applications, the Di-
5 rector shall consider, at a minimum, how significantly the
6 research would advance both the physical and nonbio-
7 medical life sciences.

8 (e) OTHER AGENCIES.—The Director may carry out
9 this program jointly with the Department of Energy Office
10 of Science and other relevant Federal agencies.

11 (f) REPORT.—The documents prepared by the Direc-
12 tor to accompany the annual Presidential budget submis-
13 sion shall specify amounts to be expended on the program
14 in this section.

15 **SEC. 10. RESEARCH ON INNOVATION AND INVENTIVENESS.**

16 In carrying out its research programs on science pol-
17 icy and on the science of learning, the National Science
18 Foundation may support research on the process of inno-
19 vation and the teaching of inventiveness.

20 **SEC. 11. NASA'S CONTRIBUTION TO INNOVATION.**

21 (a) SENSE OF THE CONGRESS.—It is the sense of the
22 Congress that—

23 (1) a balanced science program as authorized
24 by section 101(d) of the National Aeronautics and
25 Space Administration Authorization Act of 2005



1 (Public Law 109–155) contributes significantly to
2 innovation in and the economic competitiveness of
3 the United States; and

4 (2) a robust National Aeronautics and Space
5 Administration, funded at the levels authorized
6 under sections 202 and 203 of that Act, would offer
7 a balance among science, aeronautics, exploration,
8 and human space flight programs, all of which can
9 attract and employ scientists, engineers, and techni-
10 cians across a broad range of fields in science, tech-
11 nology, mathematics, and engineering.

12 (b) PARTICIPATION IN INNOVATION AND COMPETI-
13 TIVENESS PROGRAMS.—The Administrator of the Na-
14 tional Aeronautics and Space Administration shall fully
15 participate in any interagency efforts to promote innova-
16 tion and economic competitiveness through scientific re-
17 search and development within the spending levels cited
18 in subsection (a).

19 **SEC. 12. NASA WORKFORCE TRAINING.**

20 (a) ESTABLISHMENT.—The Administrator of the Na-
21 tional Aeronautics and Space Administration may estab-
22 lish a NASA Academy, which may be established as a vir-
23 tual Academy using online learning techniques. The Acad-
24 emy, if established, shall be available to all employees of
25 the National Aeronautics and Space Administration to fa-



1 cilitate increased knowledge of engineering and scientific
2 principles to further the missions of the National Aero-
3 nautics and Space Administration.

4 (b) PURPOSE.—The purpose of the Academy is to
5 provide a unique training program to bridge the gap be-
6 tween the broad-based training provided by universities
7 and the specific training needed to understand the dif-
8 ferent technologies which form the basis for work at the
9 National Aeronautics and Space Administration, as well
10 as to update employees with the most current training
11 available in the various skills and disciplines needed at the
12 National Aeronautics and Space Administration.

13 (c) SUBMISSION OF PLAN.—Not later than 180 days
14 after the date of enactment of this Act, the Administrator
15 of the National Aeronautics and Space Administration
16 shall transmit to the Committee on Science of the House
17 of Representatives and the Committee on Commerce,
18 Science, and Transportation of the Senate a notification
19 of whether the National Aeronautics and Space Adminis-
20 tration will establish an Academy as described in sub-
21 section (a). If an Academy is to be established, then con-
22 current with the notification, the Administrator shall
23 transmit a plan for the establishment of the Academy.

24 **SEC. 13. DEFINITIONS.**

25 In this Act—



1 (1) the term “institution of higher education”
2 has the meaning given such term in section 101(a)
3 of the Higher Education Act of 1965 (20 U.S.C.
4 1001(a)); and

5 (2) the term “National Laboratory” has the
6 meaning given the term “nonmilitary energy labora-
7 tory” in section 903(3) of the Energy Policy Act of
8 2005 (42 U.S.C. 16182(3)).

Amend the title to read as follows: “A Bill to au-
thorize the National Science Foundation and the Depart-
ment of Energy Office of Science to provide grants to
early career researchers to establish innovative research
programs and integrate education and research and to
conduct high-risk, high-return research, and for other
purposes.”.

